

**REMARKS**

The above newly amended paragraph of the specification overcome an informality noted in the specification on file. The undersigned avers that the amended paragraph of the specification does not contain any new subject matter.

Claim 26 is rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for the reasons noted in the official action. That rejected claim is canceled from this application. All of the presently pending claims are now believed to particularly point out and distinctly claim the subject matter regarded as the invention.

Next, claims 24-32 are rejected, under 35 U.S.C. § 103, as being unpatentable in view of Barclay `463 (United States Patent No. 4,408,463), claims 33 and 34 are rejected, under 35 U.S.C. § 103, as being unpatentable in view of Barclay `463 and Zimm et al. `560 (United States Patent No. 6,668,560) and claim 46 is rejected, under 35 U.S.C. § 103, as being unpatentable in view of Barclay `463 and Hed `361 (United States Patent No. 5,091,361). The Applicant acknowledges and respectfully traverses all of the raised obviousness rejections in view of the above amendments and the following remarks.

In order to address the raised rejections, method claims 24-27 are canceled, without prejudice, while claim 28 is amended and new claims 47 and 48 are entered to overcome the raised 35 U.S.C. § 103 rejection over Barclay `463.

Turning now to Barclay `463, this reference relates to a magnetic refrigerator having a magnetic wheel and a pair of superconducting magnetic windings 46. The magnetic wheel is a magnetic ring formed of a plurality of magnetic rings n1, n2, n3 . . . (see Fig. 4) such that a first of the superconducting magnetic windings 46 is located *outside* the ring and a second of the superconducting magnetic windings 46 is located *inside* the magnetic ring (see Fig. 5). The magnetic refrigerator further includes manifolds 34, 36, 38, 40 that are coupled to respective thermal exchangers 16, 18. Fluid is pumped through these exchangers 16, 18 and to flow radially between inner manifolds 36, 38 and outer manifolds 34, 40. That is, the fluid flows radially--in a direction normal to the rotational axis--through the magnetic ring and not axially along the cylindrical rotating element 15 as with the presently claimed invention.

In view of the above brief description, it is quite apparent that the disclosure of Barclay '463 is distinctly different from the presently claimed invention for a number of reasons. For example, according to the presently claimed invention, the magnetic elements are normally located about a periphery of the of the rotating element, which is generally in the shape of a circular or cylindrical wheel. This cylindrical rotating element 15 rotates about the rotational axis and axial transverse passageways 25 are formed in the cylindrical rotating element 15 that extend axially through the cylindrical rotating element 15 such that fluid can flow axially therethrough. The fluid flows axially through the cylindrical rotating element 15 and These passageways 25 extend parallel to the rotational axis and are arranged radially with respect to the rotational axis so that fluid flows axially along the cylindrical rotating element 15.

In order to emphasize the above noted distinctions between the presently claimed invention and the applied art, the independent claim 28 of this application now recites the features of "an enclosure (11) divided into first and second compartments (12, 13) that are juxtaposed and separated from one another by a partition (14), the enclosure (11) comprises a cylindrical portion closely accommodating a rotating element (15) which comprises cylindrical shaped wheel that is arranged transversely in relation to the first and second compartments (12, 13) and rotating on an axle located in a plane of the partition (14) so that the rotating element (15) is simultaneously located partially inside the first and second compartments (12, 13), the rotating element is coaxial with the cylindrical portion of the enclosure (11) so that the fluid flows axially through the cylindrical rotating element (15).....and magnetic elements (16) for generating a magnetic field in the first compartment (12), at least in the area corresponding to the rotating element (15), the rotating element (15) comprising at least one magneto-calorific material which undergoes a temperature increase when the rotating element (15) passes through the first compartment (12) subjected to the magnetic field and cools down when the rotating element (15) passes through the second compartment (13) that is not subjected to the magnetic field." Independent claim 47 recites similar limitations to claim 28 but further recites the feature of "the magnetic elements (16) comprise permanent magnets which are fixed in a position and extend only along a half periphery of the central cylindrical portion of the enclosure (11)."

Lastly new independent claim 48 recites the features of "an enclosure (11) being divided into first and second compartments (12, 13) that are juxtaposed and separated from one another by a partition (14), the enclosure (11) closely accommodating a cylindrical rotating element (15) arranged transversely in relation to the first and the second compartments (12, 13), the cylindrical rotating element (15) having a plurality of axially arranged traverse passageways (25) therein such that fluid passing through the first and the second compartments (12, 13) passes axially through the cylindrical rotating element (15) via the traverse passageways (25), the cylindrical rotating element (15) rotating on an axle which is coincident with a plane defined by the partition (14) so that the cylindrical rotating element (15) is simultaneously located partially inside the first and the second compartments (12, 13), and the rotating element is coaxial with at least a portion of the enclosure (11)....and the magnetic elements (16) comprise permanent magnets which are fixed in a position only adjacent a periphery of the cylindrical rotating element (15) of only one of the first and the second compartments (12, 13)." Such features are believed to clearly and patentably distinguish the presently claimed invention from all of the art of record, including the applied art.

The Applicant acknowledges that the additional references of Zimm et al. `560 and Hed `361 may arguably relate to the features indicated by the Examiner in the official action. Nevertheless, the Applicant respectfully submits that the combination of the base reference of Barclay `463 with this additional art of Zimm et al. `560 and/or Hed `361 still fails to in any way teach, suggest or disclose the above distinguishing features of the presently claimed invention. As such, all of the raised rejections should be withdrawn at this time in view of the above amendments and remarks.

In view of the above amendments and remarks, it is respectfully submitted that all of the raised rejections should be withdrawn at this time. If the Examiner disagrees with the Applicant's view concerning the withdrawal of the outstanding rejections or applicability of the Barclay `463, Zimm et al. `560 and/or Hed `361 references, the Applicant respectfully requests the Examiner to indicate the specific passage or passages, or the drawing or drawings, which contain the necessary teaching, suggestion and/or disclosure required by case law. As such

teaching, suggestion and/or disclosure is not present in the applied references, the raised rejection should be withdrawn at this time. Alternatively, if the Examiner is relying on his/her expertise in this field, the Applicant respectfully requests the Examiner to enter an affidavit substantiating the Examiner's position so that suitable contradictory evidence can be entered in this case by the Applicant.

In view of the foregoing, it is respectfully submitted that the raised rejection(s) should be withdrawn and this application is now placed in a condition for allowance. Action to that end, in the form of an early Notice of Allowance, is courteously solicited by the Applicant at this time.

The Applicant respectfully requests that any outstanding objection(s) or requirement(s), as to the form of this application, be held in abeyance until allowable subject matter is indicated for this case.

In the event that there are any fee deficiencies or additional fees are payable, please charge the same or credit any overpayment to our Deposit Account (Account No. 04-0213).

Respectfully submitted,



Michael J. Bujold, Reg. No. 32,018

**Customer No. 020210**

Davis Bujold & Daniels, P.L.L.C.

112 Pleasant Street

Concord, NH 03301-2931

Telephone 603-226-7490

Facsimile 603-226-7499

E-mail: [patent@davisandbujold.com](mailto:patent@davisandbujold.com)